

BOOK REVIEWS

Social Inequalities and Cancer

M. Kogevinas, N. Pearce, M. Susser, P. Boffetta, eds. Lyon (France): International Agency for Research on Cancer, 1997. 412 pp., illus. \$69. ISBN 92-832-8138-9

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Social class is an area that has regained attention in the U.S. public health literature in the last decade. Awareness of how social class shapes cancer outcomes would advance cancer studies and cancer control interventions, which makes the publication of *Social Inequalities and Cancer* by the International Agency for Research on Cancer (IARC) both timely and important. The 20 chapters in the book review what is known about theories of social class formation; available measures of socioeconomic status (SES); and how SES is associated with site-specific cancer incidence, survival, and mortality. Nearly half the volume focuses on explanations related to cancer screening, tobacco use, diet and nutrition, viral agents, and occupational hazards in countries around the world. In addition, the editors conducted a survey to obtain data on site-specific cancer incidence, survival, and mortality by SES from countries who do not routinely report this information. The outstanding group of international contributors spans the fields of epidemiology, cancer statistics, oncology, anthropology, and the social sciences. This seminal volume provides a detailed introduction and a substantial bibliography to guide readers who seek multilevel explanations for why social inequalities yield differential cancer occurrence and outcomes.

A key reason that SES is so often just a footnote in cancer epidemiology studies, Pearce suggests in the opening section on general considerations, is the difficulty of teasing out the specific elements related to social class. Moreover, social class is likely linked to cancer at several levels, and thus the study of social inequalities and cancer becomes a study of social organization as well as individuals, organ systems, and cell biology. Where to begin the study of social inequalities is, as might be expected, a topic of debate that is often shaped by one's discipline. Pearce advocates beginning at the population level and his claim is augmented by a history of public health advances that emanated from improvements in social welfare.

Tomatis then warns us of the likelihood of rising cancer rates in developing countries in the near future.

Rates in these countries are currently lower than in industrialized countries, but occupational health risks are increasing because hazardous industries—no longer acceptable or legal in developed countries—are being transferred to poor countries where protections do not yet exist. Likewise, toxic wastes, tobacco, and health-damaging chemicals are being dumped and marketed in poor countries, where the development of national economies seems to be outpacing the development of educational and health systems. The section concludes by presenting the theoretic underpinnings for measuring and analyzing social class and then discusses the formidable task of applying social class theory to social class measurement. By including not only measures that already have been used in socioeconomic analyses, but also a range of measures that are available and could be used, authors Berkman and Macintyre provide a grounding in the types of indicators and the methods that have been developed to score and index them.

International evidence of the association between socioeconomic inequalities and cancer incidence and mortality is presented in the following section, including data from the editors' own survey. Data are arrayed in tabular form for all malignant neoplasms combined and for 24 individual types of neoplasms in 37 populations in 21 countries. Measures of association are shown as age-standardized rate ratios, and the data generally indicate an inverse socioeconomic gradient for cancer among both men and women. A second chapter tackles the problem of socioeconomic differentials in cancer survival, using 42 studies, most conducted in North America or in western Europe, with data from both population-based cancer registries and hospital-based information. Substantial socioeconomic differences are evident, with lower SES patients consistently experiencing shorter survival. The highest relative risks were observed for cancers with fairly good prognosis (breast, colorectal, bladder, or uterine corpus). Where medical care is of little utility, survival relative risks are closer to 1.0. The authors provide a thoughtful interpretive section reviewing various biases and methodologic issues.

People who live in poorer countries and poorer people who live in rich countries have faced higher death rates for at least as long as there have been data to measure health and wealth. The next section turns to explanations for this disparity. The first chapter considers the issue broadly, as a methodologic challenge and as a phenomenon with multiple explanations, many of which are testable. The authors' evaluation of the differences among the various indices of economic and social advantage is a must-read for practitioners working in this area.

Stellman and Resnicow raise a number of important questions about the contribution of smoking and social class on cancer incidence and mortality. The authors present a myriad of extremely useful statistics from several countries documenting the extent to which smoking patterns differ according to occupation, socioeconomic groupings such as level of education or income, race or ethnicity, and how these patterns have changed over the last 25 years. The gap in smoking prevalence between social classes is widening as individuals in the upper SES groups eschew smoking, while those in the lower SES groups continue to smoke at alarmingly high rates.

Alcohol drinking is the clearest and simplest example of a behavior that is demonstrably related to social class and to the risk of developing and dying of cancer, namely, cancers that arise in the upper gastrointestinal and respiratory tracts and in the liver. Many analytic studies of these cancers demonstrate the associations; the authors use a clever and simple comparative approach to explore the differences

between lung cancer and the alcohol-related cancers for more than a dozen countries. The next chapter hypothesizes a framework for the contribution of diet to the higher risk of cancer in the poor, arguing that through evolution, humans have become well adapted to an "original" diet and that variation from this diet, which contained greater proportions of fruits and vegetables, contributes to increased cancer risk. The next logical step will be to document differences in diet by social class and to examine possible dietary explanations for the higher risk of cancer in the poor.

Links between sexual behavior or infections and cancer are reviewed in the next several chapters. A clear and comprehensive examination of international surveys to assess socioeconomic variations in reproductive behavior around the world is followed by a review of surveys on the relationship between sexual behavior and social class in developed countries. Infection with hepatitis B virus is more likely among people of lower social strata and children in particular are more likely to be chronic carriers. Data on social class and hepatitis C virus are more limited, since the viral agent was more recently discovered. The chapter that reviews studies linking infection with *Helicobacter pylori* to lower SES suggests a critical need to examine the cause of this disparity and determine appropriate interventions.

Evaluation of occupational exposures begins, appropriately, by noting that the analysis of the proportion of social class differences in cancer due to occupation are complicated by the fact that social class definitions are largely based on occupation. This chapter contains a useful summary of International Agency for Research on Cancer evaluations of agents and exposures generally considered environmental, but which can be found in the occupational setting. The percent of cancer thought to be attributable to occupational exposures may seem small, but these exposures are involuntary and preventable, making them a high priority for elimination. A review of unemployed men and cancer covers the sparse literature on this important topic. Unemployment is a key socioeconomic determinant of health (via income, insurance, and lifestyle), as Lynge points out, and a significant fraction of the workforce has been unemployed at various times in the past 30 years. Literature on smoking patterns, depression, and unemployment is interwoven for a provocative conclusion. Cancer incidence and mortality from Danish census data for two time periods for broad groups of cancers (total, digestive, respiratory, genital and urinary organs, hematopoietic, and other) are analyzed in the following chapter, and the similarities and differences in cancer incidence and mortality, between unemployed and "inactive" (including housewives, students, and retirees), and by sex and time, are very thought provoking.

In the section on health care, Segnan's review of SES and cancer screening is appropriately limited to breast and cervical cancers, since these sites have the most scientific agreement on the efficacy of screening as well as general consensus regarding screening policies. In the countries where this relationship has been studied, SES is positively associated with participation in screening, even when health insurance is universally available to all women. Segnan reports that even low intensity programs (e.g., screening every 10 years) can be effective if compliance is 100%.

While this volume obviously will be useful to epidemiologists who want to identify key studies, data sources, or hypotheses for further investigation on cancer and social class, it will also be of great use to clinicians and health service delivery managers, especially those working in the socioeconomically diverse arenas that characterize most clinical settings in the United States today. Methodologic research to quantify the extent to which various biases could influence observed socioeconomic differences is

clearly needed, and throughout the book, readers are reminded that the interaction of multiple factors is vitally important in any consideration of social class. Finally, the book will appeal to policymakers because it articulates the many hard political and economic choices policymakers need to consider. In this time of remarkable advances in science and the enthusiasm for the molecular genetics of cancer, the presence of clear socioeconomic differentials—and the shift in these gradients over time—reminds us that there is much in our social environment that contributes to malignant disease.

NOTES

Members of the NCI Social Inequalities and Cancer Work Group include the following: Gloria Gridley, Patricia Hartge, Helen Meissner, Barry Miller, Thomas R. O'Brien, Arthur Schatzkin, Donald Shopland, Ellen Velie, and Sheila Zahm.

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